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(e.g., B1 for ERIC).
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B 324,331,342,344,347,348,349,350,351,352,371
>>>   350 is unauthorized
>>>   351 is unauthorized
>>>   352 is unauthorized
>>>3 of the specified files are not available
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          $0.00   0.195 DialUnits FileHomeBase
     $0.00   Estimated cost FileHomeBase
     $0.22   INTERNET
     $0.22   Estimated cost this search
     $0.22   Estimated total session cost   0.195 DialUnits

SYSTEM:OS - DIALOG OneSearch
  File 324:German Patents Fulltext 1967-200642
         (c) 2006 Univentio
 *File 324: For important information about IPCR/8 and forthcoming
changes to the IC= index, see HELP NEWS IPCR.
  File 331:Derwent WPI First View   UD=200669 (c) 2006 The Thomson Corp.
 *File 331: For patent family information, search also File 351, 352,
or 350.
  File 342:Derwent Patents Citation Indx 1978-05/200666
         (c)2006 The Thomson Corp.
  File 344:Chinese Patents Abs Jan 1985-2006/Jan
         (c) 2006 European Patent Office
  File 347:JAPIO Dec 1976-2006/Jan(Updated 061009)
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  File 348:EUROPEAN PATENTS 1978-2006/ 200643
         (c) 2006 European Patent Office
 *File 348: For important information about IPCR/8 and forthcoming
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  File 349:PCT FULLTEXT 1979-2006/UB=20061026UT=20061019
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 *File 349: For important information about IPCR/8 and forthcoming
changes to the IC= index, see HELP NEWSIPCR.
  File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI. All rts. reserv.

*File 371: This file is not currently updating. The last update is 200209.

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     Set    Items   Description
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S (DETERMIN? OR COMPUT? OR CALCULAT?) (S) (VELOCITY (S) (WHEEL (2N) DRIV?) (S) (REFE
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Processing
>>>File 349 processing for DETERMIN? stopped at DETERMININGFOR
>>>File 349 processing for COMPUT? stopped at COMPUTERMAUSTASTEN
>>>File 349 processing for DRIV? stopped at DRIVIRIAR
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           227307  VELOCITY
           530089  WHEEL
          2485384  DRIV?
          2418801  REFERENC?
          1648591  DISTANC?
          1122107  VEHICLE
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                   (WHEEL (2N) DRIV?) (S) (REFERENC? (2N) DISTANC?) (S)
                   VEHICLE)
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T S1/3,KWIC/1

   1/3,KWIC/1   (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2006 WIPO/Thomson. All rts. reserv.

00926927   **Image available**
   SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
   SYSTEME ET PROCEDE DE DIRECTION D'UN VEHICULE A ROUES MOTRICES MULTIPLES
Patent Applicant/Assignee:
   INVACARE CORPORATION, One Invacare Way, Elyria, OH 44036-2125, US, US
      (Residence), US (Nationality)
Inventor(s):
   STROTHMANN Thomas, Noldestrabe 3, 49134 Wallenhorst, DE,
Legal Representative:
   PEJIC Nenad (agent), Calfee, Halter & Griswold LLP, 1400 McDonald
      Investment Center, 800 Superior Avenue, Cleveland, OH 44114, US,
Patent and Priority Information (Country, Number, Date):
   Patent: WO 200260742 A2-A3 20020808 (WO 0260742)
   Application: WO 2002US952 20020115 (PCT/WO US0200952)
   Priority Application: US 2001773793 20010201
Designated States:
(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)
   AU CA NZ
   (EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 5651

Fulltext Availability:
   Detailed Description

Claims

English Abstract
  A system and method of controlling a multi- wheel   drive   vehicle   is
  provided. The invention is preferably applicable to the steering of such
  a vehicle and determines the individual velocities for each   wheel
  drive (108, 110, 112, 114). In this regard, the invention includes two
  general steps. The first step includes determining the distance of each
   wheel   drive   (108, 110, 112, 114) and a vehicle   velocity reference
  point from a turning reference point. The second step includes ratioing
  each   wheel   drive 's distance from the turning reference point with the
   vehicle   velocity   reference point's distance from the turning
  reference point. The ratios are then applied to a vehicle   velocity
  associated with the vehicle   velocity reference point to determine
  the velocity of each respective wheel   drive .(108, 110, 112, 114).
  Once determined , the velocities are output to each wheel   drive
  .(108, 110, 112, 114)

Detailed Description
... to another embodiment of the present invention, a method of
  controlling a inulti-wheel drive vehicle includes, for example, the
  step of determining a turning reference, vehicle   velocity , and
  reference   distance . The reference   distance is the distance between
  the turning reference and a Imown reference position relative to the
  vehicle . The method further includes, for example, determining a
  wheel   drive distance and velocity for each   wheel   drive . The
  wheel   drive distance is the distance of each   wheel   drive from the
  turning reference. The velocity for a wheel   drive is determined
  from the wheel   drive distance , reference   distance and vehicle
   velocity . Once the velocity for each wheel   drive has been
  determined , it is outp atted to each wheel   drive .

  [O 0 0 61 According to another embodiment of the present invention a
  system for...third point "R" exists laterally between wheel drives 112
  and 114 and spatially defines the vehicle 's velocity reference point.
  The steering servo-mechanism I 1 6 is mechanically coupled to the rear...

  ...i i i terms of an anglefl, as shown. The angle,8 is used to determine
  the turning   reference
  position in
   distance a between turning reference point "P" and point "O", as shown
  in Figure 2. This determination is made via Equation (1).

  a = HR x tan,6 Eq. (1)
  where,8 is...X COt(6) = HRX Cot(-)q) Eq. (2)
  [O 02 51 Having defined the turning   reference   distance a and the
  wheel base positions, reference is now made to Figure 3. Figure 3
  illustrates distances S from turning reference point "P" to each   wheel
  drive and the velocities V of each   wheel   drive . In this regard,
  logic 104 employs either of two approaches to determine the individual
  wheel   drive velocities. The first approach utilizes a two step
  analysis wherein the first step is to determine , from turning reference
  point "Y', the distance of each of the wheel   drives and the vehicle
  's velocity   reference point "W'.

  Once these distances are known, the individual wheel drive velocities can
  be determined based on the known velocity at the vehicle 's
  velocity reference point "W' and the wheel   drive 's distance from
  turning reference point "Y'. The second approach utilizes the steering
  servomechanism's 116 angular positionp and the vehicle 's wheel   drive

base dimensions.
[O 02 61 Referring now to Figure 3, the present discussion will now...

...112, and 114, respectively, and turning reference point "P." Distance SR represents the distance between vehicle 's velocity reference point "W' and turning reference point "P." So defined, these distances can be determined according to Equations (3)-(7).

$$SFL = a - \frac{w}{2} \quad Eq. \ (3)$$

$$SFR = a + \frac{W}{-} \quad Eq...$$

...X VR for 0 P Z Eq. (14)
SR
Generally, Equations (9)-(14) determine each wheel drive 's velocity V by ratioing each wheel drive distance S with the vehicle 's velocity reference point distance SR and then applying that ratio to the vehicle velocity VR designated at the vehicle velocity reference point "R". Hence, by determining the individual wheel drive distances, the individual wheel drive velocities can be determined therefrom.
[00281 Still referring to Figure 3, the second approach described above utilizes the steering...The logic starts in step 402 where the logic reads the angularpositionpofstecringservo-mechaiiismll6. Thelogicnextadvancestostep4O4where the reference distance a, individual wheel drive distances S, and vehicle velocity reference point distance SR are determined via equations (1) and (3)-(7), respectively. After step 404, the logic advances to step 406 where the velocities for each wheel drive are determined based on each wheel drive 's distance S, the vehicle velocity reference point distance SR, the overall vehicle velocity VR, and anglefl. (See, for example, Figure 3 and Equations (8)-(14)). After all of the wheel drive velocities have been determined , they are output in step 408 to the wheel drives .

After stop 408, the logic loops back to step 402 and the logic repeats. It...

...effecting movement of the vehicle.

10
(O 03 21 hi surnmary,'by det6nnining the individual wheel drive velocities for a mult- wheel drive vehicle , accurate turns may be taken by the vehicle that do not cause oversteer, understeer, or any of the wheel drives to drag along the riding surface. The velocities can be deterinined by either of two approaches. The first approach generally utilizes a two step analysis. The first step determines the distance of each wheel drive from a turning reference point. Once the distances have been determined , the velocities are determined in a second step by ratioing the wheel drive distance from the turning reference point and the vehicle 's velocity reference point distance from the turning point and applying that ratio to the vehicle velocity . The second approach utilizes the steering servo-mechanism's angular position and the vehicle 's wheel drive base dimensions, along with the vehicle velocity , to determine the individual wheel drive velocities. Once all of the individual wheel drive velocities have been determined , they are applied to the wheel drives .

Moreover, for individually stecrable wheel drives, the steering angle can

be detennined through the wheel...

Claim
... general inventive concept.
 CLAIMS: I claim:

 1 A method of controlling a multi-wheel drive vehicle comprising the
steps of:
 (a) detennining a turning reference and a vehicle velocity ;
 (b) determining a reference distance from the turning reference;
 (c) determining a wheel drive distance ftorn. the turning reference
for each wheel
 drive of the multi- wheel drive vehicle ;
 (d) detennining a velocity for each wheel drive based on the
vehicle velocity , wheel
 drive distance , and reference distance ; and
 (e) outputting the determined velocity for each wheel drive to
each wheel drive .

 2 The method of claim I wherein step (a) comprises reading the position
output of...

...steering servo-mechanism.
 6 The method of claim 1 wherein step (b) comprises determining the
reference distance
based on the following relationship:
SR = la 2+H2
where SR is the reference distance , a is the turning reference, and H
is a wheel base dimension of the vehicle .
 12
. The method of claim 1 wherein step (d) comprises determining the
velocity for each
 wheel drive based on the following relationship:
V = S x VP
SR
where V is the velocity for the wheel drive , S is the wheel
drive distance from the taming reference, SR is the reference
distance , and VR is the vehicle velocity .

 8 The method of claim 1 flifther comprising the step of determining a
steering angle...

...steering angle to the at least one drive.

 10 A system for controlling a multi- wheel drive vehicle comprising
the steps of:
 (a) an input device;
 (b) a controller in circuit communication with the input device;
 (c) at least two wheel drives in circuit communication with the
controller; and
 (d) logic for:
 (1) determining a turning reference and a vehicle velocity from the
input
device;
 (2) determining a reference , distance from the turning reference;
 (3) detern-iining a wheel drive distance from the turning reference
for each
 wheel drive of the multi- wheel drive vehicle ;
 (4) deterinining a velocity for each wheel drive based on the
vehicle velocity ,

wheel   drive   distance , and   reference   distance ; and
(5) outputting the determined   velocity for each   wheel   drive   to
each   wheel   drive .

11 The system of claim 10 wherein the input device comprises a user
manipulable input...
...The system of claim 1 0 wherein the logic for determining a velocity for
each   wheel   drive based on the   vehicle   velocity ,   wheel   drive
distance , and   reference   distance   comprises logic for   determining
the   velocity   for each   wheel   drive   based on the following
relationship:
V= S x VR
SR
where V is the   velocity   for the   wheel   drive , S is the   wheel
drive   distance from the turning reference, SR is the   reference
distance , and VR is the   vehicle   velocity .

17 The method of claim 10 further comprising logic for determining a
steering angle for...

...steering angle to the at least one drive.
 14
. A system for controlling a nulti- wheel   drive   vehicle   comprising
the steps of
(a) means for inputting at least one control signal;
(b) a...

...communication with the means for inputting a
 plurality of control signals;
 (c) at least two   wheel   drive   means in circuit communication with the
controller
means;
 (d) means for   determining   a turning reference and a   vehicle   velocity
 from the input
device-,
 (e) means for   determining   a   reference   distance   from the turning
reference; (f) means for   determining   a   wheel   drive distance from
the turning reference for   each
 wheel   drive   of the multi- wheel   drive   vehicle ;
 (g) means for   determining   a   velocity   for each   wheel   drive   based
on the   vehicle
 velocity ,   wheel   drive   distance , and   reference   distance ; and
 (h) means for outputting the   determined   velocity   for each   wheel
drive   to each   wheel   drive .

20 The system of claim 19 wherein the means for inputting at least one
control...

...25 The system of claim 19 wherein the means for determining a velocity
 for each   wheel   drive based on the   vehicle   velocity ,   wheel
drive   distance , and   reference   distance   comprises means for
determining the   velocity   for each   wheel   drive based on the
following relationship:
V = S X VR
SR
where V is the   velocity   for the   wheel   drive , S is the   wheel
drive   distance from the turning reference, SR is the   reference
distance , and VR is the   vehicle   velocity .

26 The method of claim 19 further comprising the logic for determining a

steering angle...
?

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File    6:NTIS 1964-2006/Oct W3
           (c) 2006 NTIS, Intl Cpyrght All Rights Res
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           (c) 2006 FIZ TECHNIK
File 266:FEDRIP 2006/Aug
           Comp & dist by NTIS, Intl Copyright All Rights Res
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                 (S) VEHICLE)
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>>>File 63 processing for PD=  : PD=010201
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                  DISTANC?) (S) VEHICLE)
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files uspatfu 340-341   10/815308

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3/3,IN/1   (Item 1 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent
(c) 2006 IFI/CLAIMS(R). All rts. reserv.

10679394
  E/SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: Unassigned Or Assigned To Individual
Assignee Code: 68000
Attorney, Agent or Firm: CALFEE HALTER & GRISWOLD, LLP, 800 SUPERIOR
    AVENUE, SUITE 1400, CLEVELAND, OH, 44114, US

	Publication Number	Kind	Date	Application Number	Date
	US 20040186633	A1	20040923	US 2004815308	20040401
Continuation of:	US 6526336			US 2001773793	20010201
	Pending			US 2002279606	20021024
Priority Applic:				US 2004815308	20040401
				US 2001773793	20010201
				US 2002279606	20021024

    3/3,IN/2   (Item 2 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent
(c) 2006 IFI/CLAIMS(R). All rts. reserv.

04146083
  E/(A1) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
  (B2) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: (A1) Unassigned Or Assigned To Individual
         (B2) Invacare Corp
Assignee Code: (A1) 68000; (B2) 37783
Probable Assignee: Invacare Corp
Attorney, Agent or Firm: Calfee, Halter & Griswold; Pejic, Nenad

	Publication Number	Kind	Date	Application Number	Date
	US 20030055539	A1	20030320	US 2002279606	20021024
	US 6807466	B2	20041019	US 2002279606	20021024
Continuation of:	US 6526336			US 2001773793	20010201
Prior Publication:	US 20030055539	A1	20030320		
Priority Applic:				US 2002279606	20021024
				US 2001773793	20010201

Calculated Expiration: 20210201

    3/3,IN/3   (Item 3 from file: 340)
DIALOG(R)File 340:CLAIMS(R)/US Patent
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3836244
  E/(A1) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
  (B2) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: (A1) Unassigned Or Assigned To Individual
         (B2) Invacare Corp
Assignee Code: (A1) 68000; (B2) 37783

Probable Assignee: Invacare Corp
Attorney, Agent or Firm: Calfee, Halter & Griswold LLP; Pejic Nenad

	Publication Number	Kind	Date	Application Number	Date
	US 20020147539	A1	20021010	US 2001773793	20010201
	US 6526336	B2	20030225	US 2001773793	20010201
Prior Publication:	US 20020147539	A1	20021010		
Priority Applic:				US 2001773793	20010201

Calculated Expiration: 20210201

3/3,IN/4   (Item 1 from file: 341)
DIALOG(R)File 341:CLAIMS(R)/UNITERM
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10679394
E/SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: Unassigned Or Assigned To Individual
Assignee Code: 68000
Attorney, Agent or Firm: CALFEE HALTER & GRISWOLD, LLP, 800 SUPERIOR
     AVENUE, SUITE 1400, CLEVELAND, OH, 44114, US

	Publication Number	Kind	Date	Application Number	Date
	US 20040186633	A1	20040923	US 2004815308	20040401
Continuation of:	US 6526336			US 2001773793	20010201
	Pending			US 2002279606	20021024
Priority Applic:				US 2004815308	20040401
				US 2001773793	20010201
				US 2002279606	20021024

3/3,IN/5   (Item 2 from file: 341)
DIALOG(R)File 341:CLAIMS(R)/UNITERM
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04146083
E/(A1) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
(B2) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: (A1) Unassigned Or Assigned To Individual
     (B2) Invacare Corp
Assignee Code: (A1) 68000; (B2) 37783
Probable Assignee: Invacare Corp
Attorney, Agent or Firm: Calfee, Halter & Griswold; Pejic, Nenad

	Publication Number	Kind	Date	Application Number	Date
	US 20030055539	A1	20030320	US 2002279606	20021024
	US 6807466	B2	20041019	US 2002279606	20021024
Continuation of:	US 6526336			US 2001773793	20010201
Prior Publication:	US 20030055539	A1	20030320		
Priority Applic:				US 2002279606	20021024
				US 2001773793	20010201

Calculated Expiration: 20210201

3/3,IN/6   (Item 3 from file: 341)
DIALOG(R)File 341:CLAIMS(R)/UNITERM
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3836244
 E/(A1) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
 (B2) SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
Inventors: Strothmann Thomas (DE)
Assignee: (A1) Unassigned Or Assigned To Individual
         (B2) Invacare Corp
Assignee Code: (A1) 68000; (B2) 37783
Probable Assignee: Invacare Corp
Attorney, Agent or Firm: Calfee, Halter & Griswold LLP; Pejic Nenad

| | Publication | | | Application | |
	Number	Kind	Date	Number	Date
	US 20020147539	A1	20021010	US 2001773793	20010201
	US 6526336	B2	20030225	US 2001773793	20010201
Prior Publication:	US 20020147539	A1	20021010		
Priority Applic:				US 2001773793	20010201
Calculated Expiration:	20210201				

10/815308

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Set     Items    Description
S1         6     (DETERMIN? OR CALCULAT? OR COMPUT?) (2N) (VELOCITY (2W) WH-
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T S1/3,KWIC/1-6

  1/3,KWIC/1   (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00926927   **Image available**
 SYSTEM AND METHOD FOR STEERING A MULTI-WHEEL DRIVE VEHICLE
 SYSTEME ET PROCEDE DE DIRECTION D'UN VEHICULE A ROUES MOTRICES MULTIPLES
Patent Applicant/Assignee:
  INVACARE CORPORATION, One Invacare Way, Elyria, OH 44036-2125, US, US
     (Residence), US (Nationality)
Inventor(s):
  STROTHMANN Thomas, Noldestrabe 3, 49134 Wallenhorst, DE,
Legal Representative:
  PEJIC Nenad (agent), Calfee, Halter & Griswold LLP, 1400 McDonald
     Investment Center, 800 Superior Avenue, Cleveland, OH 44114, US,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 200260742 A2-A3 20020808 (WO 0260742)
  Application: WO 2002US952 20020115 (PCT/WO US0200952)
  Priority Application: US 2001773793 20010201
Designated States:
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Publication Language: English
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Fulltext Word Count: 5651

Fulltext Availability:
  Detailed Description
  Claims

Detailed Description
... drive vehicle includes, for example, the step of determining a turning
  reference, vehicle velocity, and reference distance . The reference
  distance is the distance between the turning reference and a Imown
  reference position relative to the vehicle. The method further includes,
  for example, determining a wheel drive distance and velocity for each
  wheel drive. The wheel drive distance is the distance of each wheel
  drive from the turning reference. The velocity for a wheel drive is
  determined from the wheel drive distance , reference distance and
  vehicle velocity. Once the velocity for each wheel drive has been
  determined, it is...

Claim
... the steps of:
  (a) detennining a turning reference and a vehicle velocity;
  (b) determining a reference distance from the turning reference;
  (c) determining a wheel drive distance ftorn. the turning reference
  for each wheel
  drive of the multi-wheel drive vehicle;
  (d) detennining a velocity for each wheel drive based on the vehicle
  velocity, wheel
  drive distance , and reference distance ; and
  (e) outputting the determined velocity for each wheel drive to each
  wheel drive.

  2 The method of claim I wherein step (a) comprises...

...steering servo-mechanism.

6 The method of claim 1 wherein step (b) comprises determining the
reference   distance
based on the following relationship:
SR = la 2+H2
where SR is the   reference   distance , a is the turning reference, and H
is a wheel base dimension of the vehicle.
12
. The method of claim 1 wherein step (d) comprises   determining   the
velocity for each
 wheel drive based on the following relationship:
V = S x VP
SR
where V is the velocity for the wheel drive, S is the   wheel   drive
distance from the taming reference, SR is the   reference   distance ,
and VR is the vehicle velocity.

8 The method of claim 1 flifther comprising the...

...determining a turning reference and a vehicle velocity from the input
 device;
 (2) determining a   reference   distance   from the turning reference;
 (3) detern-iining a   wheel   drive   distance   from the turning reference
for each
 wheel drive of the multi-wheel drive vehicle;
 (4) deterinining a velocity for each wheel drive based on the vehicle
 velocity,
  wheel   drive   distance , and   reference   distance ; and
 (5) outputting the   determined   velocity   for each   wheel   drive to each
 wheel drive.

11 The system of claim 10 wherein the input device...

...dimension of the vehicle.

16 The system of claim 1 0 wherein the logic for   determining   a
velocity for each   wheel   drive based on the vehicle velocity,   wheel
drive distance , and   reference   distance   comprises logic for
determining   the   velocity   for each   wheel   drive based on the following
relationship:
V= S x VR
SR
where V is the velocity for the wheel drive, S is the   wheel   drive
distance from the turning reference, SR is the   reference   distance ,
and VR is the vehicle velocity.

17 The method of claim 10 further comprising logic...

...turning reference and a vehicle velocity from the input
 device-,
 (e) means for determining a   reference   distance   from the turning
 reference; (f) means for determining a   wheel   drive   distance   from the
turning reference for   each
 wheel drive of the multi-wheel drive vehicle;
 (g) means for   determining   a   velocity   for each   wheel   drive based on
the vehicle
 velocity, wheel   drive   distance , and   reference   distance ; and
 (h) means for outputting the   determined   velocity   for each   wheel

drive to each wheel drive.

20 The system of claim 19 wherein the means for...

...base dimension of the vehicle.

25 The system of claim 19 wherein the means for determining a velocity
 for each wheel drive based on the vehicle velocity, wheel drive
distance , and reference distance comprises means for determining
the velocity for each wheel drive based on the following
relationship:
V = S X VR
SR
where V is the velocity for the wheel drive, S is the wheel drive
distance from the turning reference, SR is the reference distance ,
and VR is the vehicle velocity.

26 The method of claim 19 further comprising the...

1/3,KWIC/2   (Item 1 from file: 654)
DIALOG(R)File 654:US Pat.Full.
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5839320 **IMAGE Available
Derwent Accession: 2002-558111
Utility
System and method for steering a multi-wheel drive vehicle
Inventor: Strothmann, Thomas, Wallenhorst, DE
Assignee: Invacare Corporation(02), Elyria, OH
Examiner: Black, Thomas G. (Art Unit: 361)
Assistant Examiner: Hernandez, Olga
Combined Principal Attorneys: Pejic, NenadCalfee, Halter & Griswold

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 6807466	A	20041019	US 2002279606	20021024
Continuation	US 6526336	A		US 2001773793	20010201

Fulltext Word Count: 5041

Summary of the Invention:
    ...drive vehicle includes, for example, the step of determining a
turning reference, vehicle velocity, and reference distance . The
reference distance is the distance between the turning reference and a
known reference position relative to the vehicle. The method further
includes, for example, determining a wheel drive distance and
velocity for each wheel drive. The wheel drive distance is the
distance of each wheel drive from the turning reference. The velocity
for a wheel drive is determined from the wheel drive distance ,
reference distance and vehicle velocity. Once the velocity for each
wheel drive has been determined, it is...

Exemplary or Independent Claim(s):
...b) determining a reference distance from the turning reference
        based on the following relationship...

...where S[sup]R is the reference distance , a is the turning reference,

and H is a wheel base dimension of the vehicle...

...c) determining a wheel drive distance from the turning reference for
each wheel drive of the multi-wheel drive vehicle...

...d) determining a velocity for each wheel drive based on the
vehicle velocity, wheel drive distance , and reference distance
; and...

...e) outputting the determined velocity for each wheel drive to each
wheel drive.

Non-exemplary or Dependent Claim(s):
...2) determining a reference distance from the turning reference
based on the following relationship...
...where S[sub]R is a reference distance , a is the turning reference,
and H is a wheel base dimension of the vehicle...

...3) determining a wheel drive distance from the turning reference for
each wheel drive of the multi-wheel drive vehicle...

...4) determining a velocity for each wheel drive based on the
vehicle velocity, wheel drive distance , and reference distance
; and...

...5) outputting the determined velocity for each wheel drive to each
wheel drive...

...e) means for determining a reference distance from the turning
reference based on the following relationship...

...where S[sub]R is the reference distance , a is the turning reference,
and H is a wheel base dimension of the vehicle...

...f) means for determining a wheel drive distance from the turning
reference for each wheel drive of the multi-wheel drive vehicle...
...g) means for determining a velocity for each wheel drive based on
the vehicle velocity, wheel drive distance , and reference
distance ; and...

...h) means for outputting the determined velocity for each wheel
drive to each wheel drive...

   1/3,KWIC/3   (Item 2 from file: 654)
DIALOG(R)File 654:US Pat.Full.
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0005807552 **IMAGE Available
Derwent Accession: 2002-558111
 System and method for steering a multi-wheel drive vehicle
Inventor: Strothmann, Thomas, INV
Correspondence Address: CALFEE HALTER & GRISWOLD, LLP, 800 SUPERIOR
    AVENUE SUITE 1400, CLEVELAND, OH, 44114, US

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 20040186633	A1	20040923	US 2004815308	20040401
Continuation	PENDING			US 2002279606	20021024

Fulltext Word Count: 7148

Summary of the Invention:
    ...drive vehicle includes, for example, the step of determining a
turning reference, vehicle velocity, and   reference   distance . The
reference   distance is the distance between the turning reference and a
known reference position relative to the vehicle. The method further
includes, for example, determining a wheel drive distance and
velocity for each wheel drive. The wheel drive distance is the
distance of each wheel drive from the turning reference. The velocity
for a wheel drive is determined from the wheel drive distance ,
reference   distance and vehicle velocity. Once the velocity for each
wheel drive has been determined, it is...

    Exemplary or Independent Claim(s):
    ...the steps of: (a) determining a turning reference and a vehicle
        velocity; (b) determining a reference   distance from the turning
        reference; (c) determining a wheel drive distance from the
        turning reference for each wheel drive of the multi-wheel drive
        vehicle; (d) determining a velocity for each wheel drive based
        on the vehicle velocity, wheel drive distance , and reference
        distance ; and (e) outputting the determined   velocity for each
        wheel drive to each wheel drive...

    ...determining a turning reference and a vehicle velocity from the input
        device; (2) determining a reference   distance from the turning
        reference; (3) determining a wheel drive distance from the
        turning reference for each wheel drive of the multi-wheel drive
        vehicle; (4) determining a velocity for each wheel drive based
        on the vehicle velocity, wheel drive distance , and reference
        distance ; and (5) outputting the determined   velocity for each
        wheel drive to each wheel drive...

    ...turning reference and a vehicle velocity from the input device; (e)
        means for determining a reference   distance from the turning
        reference; (f) means for determining a wheel drive distance from
        the turning reference for each wheel drive of the multi-wheel drive
        vehicle; (g) means for determining a velocity for each wheel
        drive based on the vehicle velocity, wheel drive distance , and
        reference   distance ; and (h) means for outputting the determined
        velocity for each wheel drive to each wheel drive...

    Non-exemplary or Dependent Claim(s):
    ...16. The system of claim 10 wherein the logic for determining a
        velocity for each wheel drive based on the vehicle velocity,
        wheel drive distance , and reference   distance comprises logic
        for determining the velocity for each wheel drive based on the
        following relationship...

    ...25. The system of claim 19 wherein the means for determining a
        velocity for each wheel drive based on the vehicle velocity,
        wheel drive distance , and reference   distance comprises means
        for determining the velocity for each wheel drive based on the
        following relationship...

    1/3,KWIC/4   (Item 3 from file: 654)

DIALOG(R)File 654:US Pat.Full.
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0005203212 **IMAGE Available
Derwent Accession: 2002-558111
 System and method for steering a multi-wheel drive vehicle
Inventor: Thomas Strothmann, INV
Correspondence Address: CALFEE HALTER & GRISWOLD, LLP, 800 SUPERIOR
    AVENUE SUITE 1400, CLEVELAND, OH, 44114, US

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 20030055539	A1	20030320	US 2002279606	20021024
Continuation	PENDING			US 2001773793	20010201

Fulltext Word Count: 7220

Summary of the Invention:
    ...drive vehicle includes, for example, the step of determining a
    turning reference, vehicle velocity, and reference   distance . The
    reference   distance is the distance between the turning reference and a
    known reference position relative to the vehicle. The method further
    includes, for example, determining a wheel drive distance and
    velocity for each wheel drive. The wheel   drive distance is the
    distance of each wheel drive from the turning reference. The velocity
    for a wheel drive is determined from the wheel drive distance ,
    reference   distance and vehicle velocity. Once the velocity for each
    wheel drive has been determined, it is...

    Exemplary or Independent Claim(s):
    ...the steps of: (a) determining a turning reference and a vehicle
        velocity; (b) determining a reference   distance from the turning
        reference; (c) determining a wheel drive distance from the
        turning reference for each wheel drive of the multi-wheel drive
        vehicle; (d) determining a velocity for each wheel drive based
        on the vehicle velocity, wheel drive distance , and reference
        distance ; and (e) outputting the determined   velocity for each
        wheel drive to each wheel drive...

    ...determining a turning reference and a vehicle velocity from the input
        device; (2) determining a reference   distance from the turning
        reference; (3) determining a wheel drive distance from the
        turning reference for each wheel drive of the multi-wheel drive
        vehicle; (4) determining a velocity for each wheel drive based
        on the vehicle velocity, wheel drive distance , and reference
        distance ; and (5) outputting the determined   velocity for each
        wheel drive to each wheel drive...

    ...turning reference and a vehicle velocity from the input device; (e)
        means for determining a reference   distance from the turning
        reference; (f) means for determining a wheel drive distance from
        the turning reference for each wheel drive of the multi-wheel drive
        vehicle; (g) means for determining a velocity for each wheel
        drive based on the vehicle velocity, wheel drive distance , and
        reference   distance ; and (h) means for outputting the determined
        velocity for each wheel   drive to each wheel drive...

    Non-exemplary or Dependent Claim(s):

...16. The system of claim 10 wherein the logic for determining a
    velocity for each wheel drive based on the vehicle velocity,
    wheel drive distance , and reference   distance comprises logic
    for determining the velocity for each wheel drive based on the
    following relationship...

...25. The system of claim 19 wherein the means for determining a
    velocity for each wheel drive based on the vehicle velocity,
    wheel drive distance , and reference   distance comprises means
    for determining the velocity for each wheel drive based on the
    following relationship...

    1/3,KWIC/5   (Item 4 from file: 654)
DIALOG(R)File 654:US Pat.Full.
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0005092781 **IMAGE Available
Derwent Accession: 2002-558111
    System and method for steering a multi-wheel drive vehicle
Inventor: Thomas Strothmann, INV
Correspondence Address: CALFEE HALTER & GRISWOLD, LLP, 800 SUPERIOR
    AVENUE SUITE 1400, CLEVELAND, OH, 44114, US

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 20020147539	A1	20021010	US 2001773793	20010201

Fulltext Word Count: 7178

Summary of the Invention:
    ...drive vehicle includes, for example, the step of determining a
turning reference, vehicle velocity, and reference   distance . The
reference   distance is the distance between the turning reference and a
known reference position relative to the vehicle. The method further
includes, for example, determining a wheel drive distance and
velocity for each wheel drive. The wheel drive distance is the
distance of each wheel drive from the turning reference. The velocity
for a wheel drive is determined from the wheel drive distance ,
reference   distance and vehicle velocity. Once the velocity for each
wheel drive has been determined, it is...

Exemplary or Independent Claim(s):
...the steps of: (a) determining a turning reference and a vehicle
    velocity; (b) determining a reference   distance from the turning
    reference; (c) determining a wheel drive distance from the
    turning reference for each wheel drive of the multi-wheel drive
    vehicle; (d) determining a velocity for each wheel drive based
    on the vehicle velocity, wheel drive distance , and reference
    distance ; and (e) outputting the determined   velocity for each
    wheel drive to each wheel drive...

...determining a turning reference and a vehicle velocity from the input
    device; (2) determining a reference   distance from the turning
    reference; (3) determining a wheel drive distance from the
    turning reference for each wheel drive of the multi-wheel drive
    vehicle; (4) determining a velocity for each wheel drive based
    on the vehicle velocity, wheel drive distance , and reference

distance ; and (5) outputting the determined velocity for each wheel drive to each wheel drive...

...turning reference and a vehicle velocity from the input device; (e) means for determining a reference distance from the turning reference; (f) means for determining a wheel drive distance from the turning reference for each wheel drive of the multi-wheel drive vehicle; (g) means for determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance ; and (h) means for outputting the determined velocity for each wheel drive to each wheel drive...

Non-exemplary or Dependent Claim(s):
...16. The system of claim 10 wherein the logic for determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance comprises logic for determining the velocity for each wheel drive based on the following relationship...

...25. The system of claim 19 wherein the means for determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance comprises means for determining the velocity for each wheel drive based on the following relationship...

1/3,KWIC/6   (Item 5 from file: 654)
DIALOG(R)File 654:US Pat.Full.
(c) Format only 2006 Dialog. All rts. reserv.

4832103 **IMAGE Available
Derwent Accession: 2002-558111
Utility
E/ **System and method for steering a multi-wheel drive vehicle**
Inventor: Strothmann, Thomas, Wallenhorst, DE
Assignee: Invacare Corp.(02), Elyria, OH
        Invacare Corp (Code: 37783)
Examiner: Cuchlinski, Jr., William A. (Art Unit: 361)
Assistant Examiner: Hernandez, Olga
Combined Principal Attorneys: Pejic, NenadCalfee, Halter & Griswold LLP

	Publication Number	Kind	Date	Application Number	Filing Date
Main Patent	US 6526336	A	20030225	US 2001773793	20010201

Fulltext Word Count: 4950

Summary of the Invention:
    ...drive vehicle includes, for example, the step of determining a turning reference, vehicle velocity, and reference distance . The reference distance is the distance between the turning reference and a known reference position relative to the vehicle. The method further includes, for example, determining a wheel drive distance and velocity for each wheel drive. The wheel drive distance is the distance of each wheel drive from the turning reference. The velocity for a wheel drive is determined from the wheel drive distance , reference distance and vehicle velocity. Once the velocity for each wheel drive has been determined, it is...

Exemplary or Independent Claim(s):
...b) determining a reference distance from the turning reference...

...c) determining a wheel drive distance from the turning reference for each wheel drive of the multi-wheel drive vehicle...

...d) determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance ; wherein this step comprises determining the velocity for each wheel drive based on the following relationship...

...where V is the velocity for the wheel drive, S is the wheel drive distance from the turning reference, S[sub]R is the reference distance , and V[sub]R is the vehicle velocity; and...

...e) outputting the determined velocity for each wheel drive to each wheel drive.

Non-exemplary or Dependent Claim(s):
...2) determining a reference distance from the turning reference...
...3) determining a wheel drive distance from the turning reference for each wheel drive of the multi-wheel drive vehicle...

...4) determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance ; wherein this logic comprises logic for determining the velocity for each wheel drive based on the following relationship...

...where V is the velocity for the wheel drive, S is the wheel drive distance from the turning reference, S[sub]R is the reference distance , and V[sub]R is the vehicle velocity; and...

...5) outputting the determined velocity for each wheel drive to each wheel drive...

...e) means for determining a reference distance from the turning reference...

...f) means for determining a wheel drive distance from the turning reference for each wheel drive of the multi-wheel drive vehicle...

...g) means for determining a velocity for each wheel drive based on the vehicle velocity, wheel drive distance , and reference distance ; wherein this means comprises means for determining the velocity for each wheel drive based on the following relationship ...

...where V is the velocity for the wheel drive, S is the wheel drive distance from the turning reference, S[sub]R is the reference distance , and V[sub]R is the vehicle velocity; and...

...h) means for outputting the determined velocity for each wheel drive to each wheel drive...